

Take 30

Community Water Fluoridation: Facts and Myths

Thursday, April 17, 2025
3:00 - 3:30 p.m. ET



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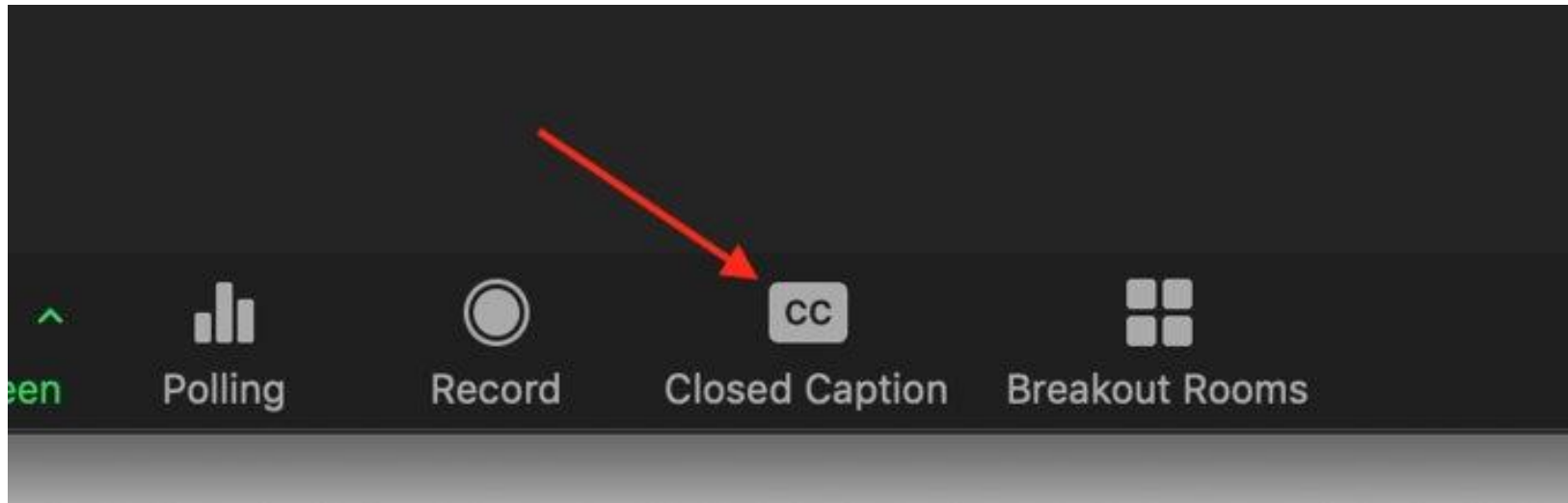


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Accessibility Logistics

- Feel free to enter your questions into the **Question & Answer box** throughout the presentations.
- We will turn to your questions and comments toward the end of the Take 30.
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OPEN Take 30: Community Water Fluoridation: Facts and Myths

Community Water Fluoridation 101

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University of Illinois Chicago College of Dentistry

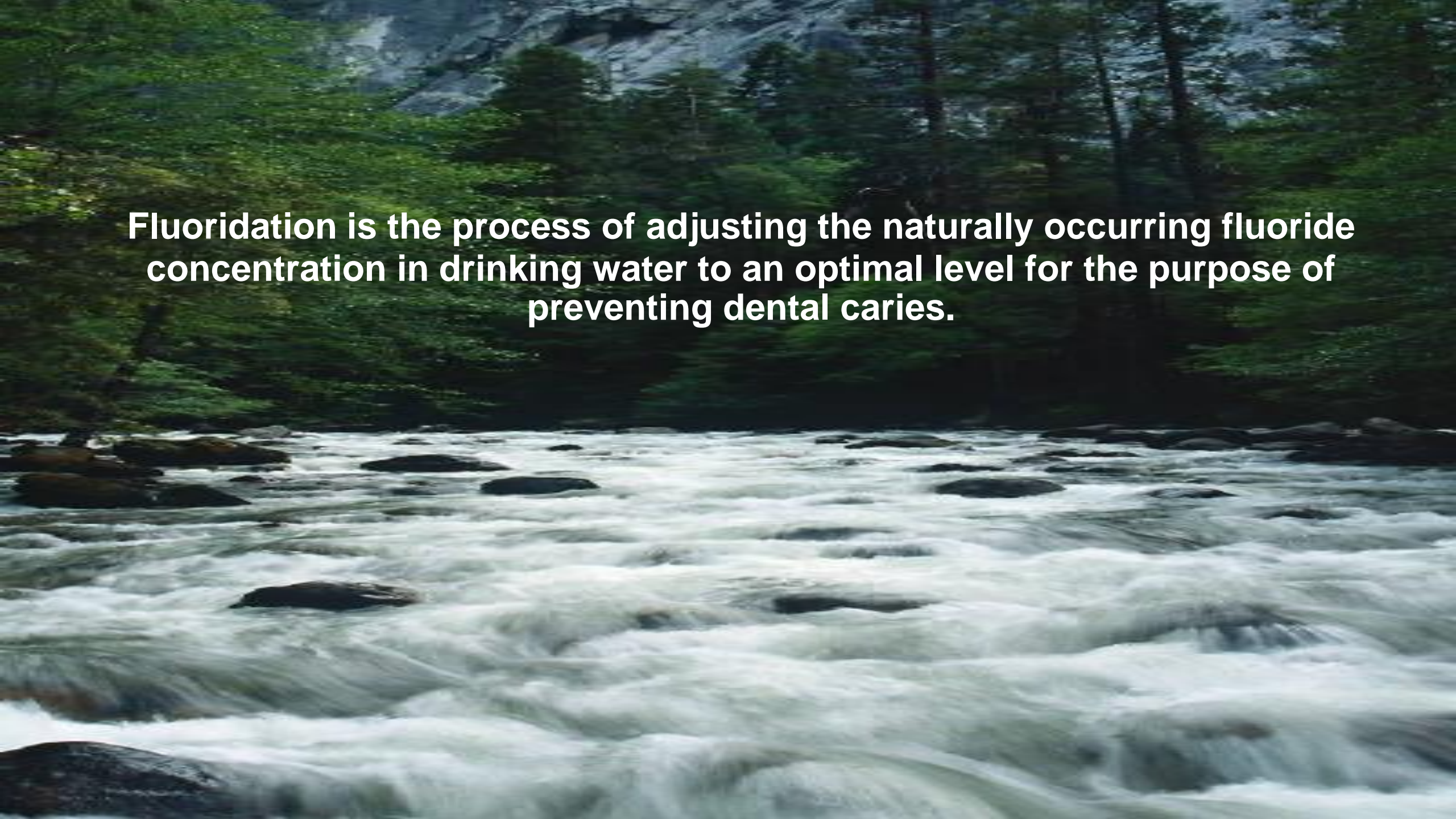
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Conflicts of Interest

- Member of ADA National Fluoridation Advisory Committee and ADA spokesperson on Community Water Fluoridation
- No financial conflicts

Outline

- What is community water fluoridation (CWF)?
- Health benefits of CWF
- Safety of CWF
- Cost savings from CWF
- Effects of stopping CWF



Fluoridation is the process of adjusting the naturally occurring fluoride concentration in drinking water to an optimal level for the purpose of preventing dental caries.

How Community Water Fluoridation Works

- Both pre-eruptive and topical prevention effects
- Fluoride incorporated into children's mineralizing dental enamel makes enamel more resistant to acid demineralization
- Topical fluorides bind to calcium and phosphate ions in saliva, helps to remineralize enamel
- Enamel remineralized with fluoride ions is more resistant to future demineralization
- Low level of fluoride exposure (0.7 ppm) throughout the day, concentrated in dental plaque
- Complements fluoride toothpaste (1100 ppm)

Major Systematic Reviews on Effectiveness of Community Water Fluoridation, Past 25 Years

- McDonagh et al. A Systematic Review of Public Water Fluoridation. NHS Centre for Reviews and Dissemination: University of York; 2000.
- The Community Preventive Services Task Force. Preventing Dental Caries: Community Water Fluoridation; 2013.
- Royal Society of New Zealand and the Office of the Prime Minister's Chief Science Advisor. Health effects of water fluoridation: a review of the scientific evidence; 2014.
- Iheozor-Ejiofor et al. Water Fluoridation for the Prevention of Tooth Decay. Cochrane Database; 2015.
- Sutton et al. Health effects of water fluoridation: an evidence review. Ireland Health Research Board; 2015.
- National Health and Medical Research Council, Australian Government. Information Paper – Water fluoridation: dental and other human health outcomes; 2017.
- Belotti L, Frazão P. Effectiveness of water fluoridation in an upper-middle-income country: A systematic review and meta-analysis. Int J Paediatr Dent. 2022;32(4):503-13.
- Iheozor-Ejiofor et al. Water Fluoridation for the Prevention of Tooth Decay. Cochrane Database; 2024.
- New Zealand Ministry of Health. Community Water Fluoridation: An evidence review. Wellington: Ministry of Health 2024.

Community Water Fluoridation Is Effective

- Studies included in recent systematic review consistently showed that water fluoridation reduced the rate of new tooth decay by 25%–30% in baby teeth and adult teeth, even with widespread availability of fluoride toothpaste.

Iheozor-Ejiofor et al. Cochrane Database of Systematic Reviews 2024, Issue 10. Art. No.: CD0108562024.
<https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD010856.pub3/full#CD010856-sec-0044>

Community Water Fluoridation Is Safe

- National Toxicology Report (NTP) and other systematic reviews on fluoride exposure and IQ reported no association at levels used in water fluoridation.
- Almost all studies that found an association were poor quality studies at high risk for bias, mostly from China, India, and Iran.
- Court decision in case against EPA relied heavily on NTP report, but stated “**does not conclude with certainty that fluoridated water is injurious to public health.**”
Decision currently under appeal by EPA.
- No other nation accepted findings of NTP report or court decision to stop fluoridation. UK recently announced plans to expand fluoridation.

National Toxicology Program, 2024. https://ntp.niehs.nih.gov/sites/default/files/2024-08/fluoride_final_508.pdf

Kumar et al. Public Health 2023;219:73-84. <https://doi.org/10.1016/j.puhe.2023.03.011>

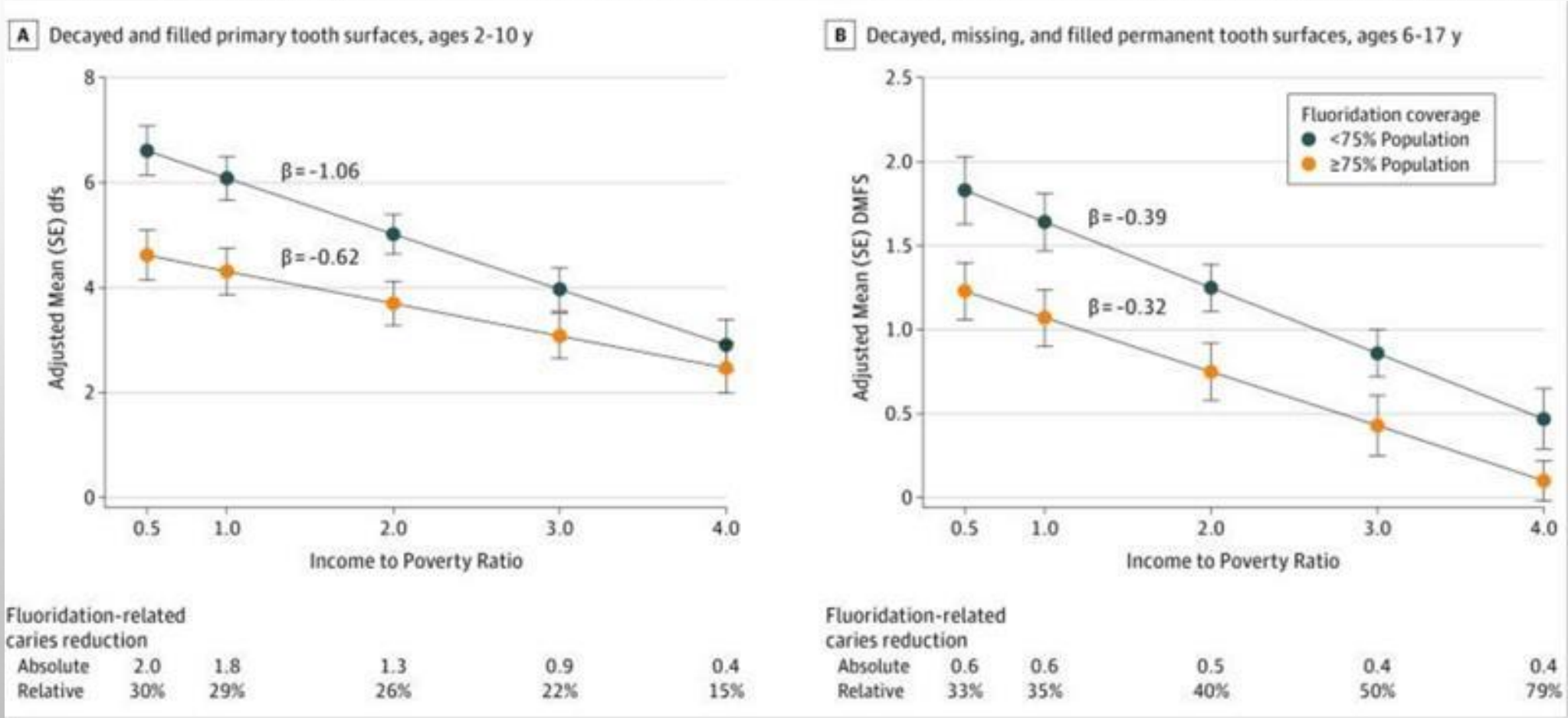
<https://www.cand.uscourts.gov/wp-content/uploads/2024/09/17-cv-2162-Food-Water-Watch-Inc.-et-al.-v.-EPA-et-al-Opinion.pdf>

Community Water Fluoridation Saves Money

- Most recent U.S. national study estimated that water fluoridation saves about \$32.19 per person, per year.
- Return on investment about 20 to 1 at contemporary levels of prevention effectiveness.

O'Connell et al. *Health Affairs* 2016;35(12):2224-32. <https://www.healthaffairs.org/doi/10.1377/hlthaff.2016.0881>

Community Water Fluoridation Reduces Income Disparities in Dental Caries



Sanders et al. JAMA Pediatr. 2019;173(3):288–290

Stopping Community Water Fluoridation Increases Dental Treatment Costs

Consistent evidence from Anchorage, Calgary, and Israel

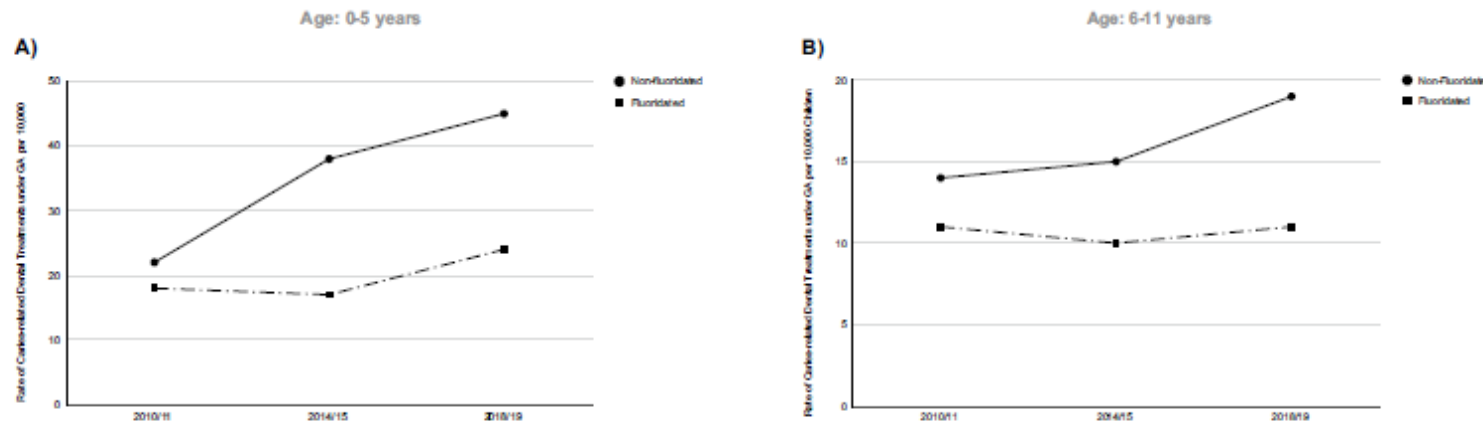
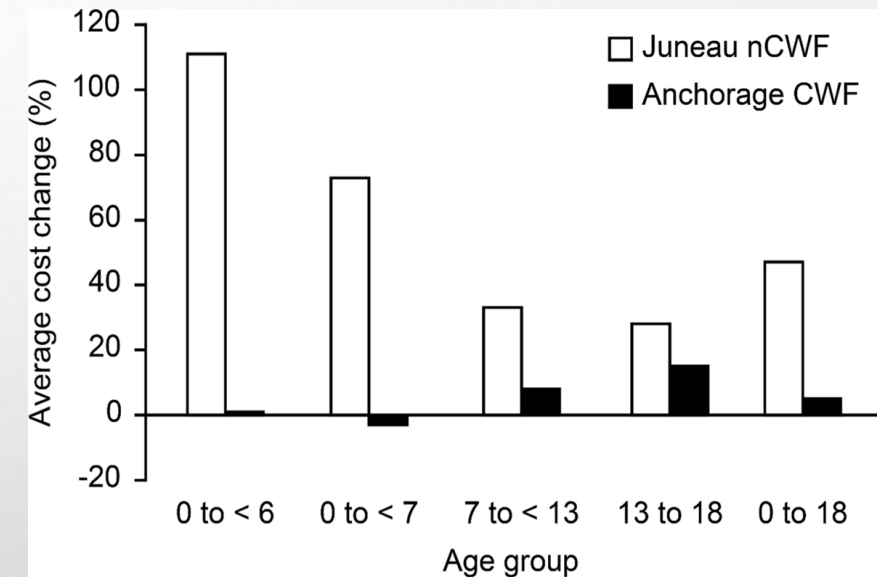


Fig.2 Trend of caries-related dental treatments under general anesthesia per 10,000 children in fluoridated (Edmonton) and non-fluoridated (Calgary) areas, stratified by age groups: (A) 0–5 years and (B) 6–11 years



Mean # treatments, age 3–12, 2014–2019, Macabi-Dent, Israel

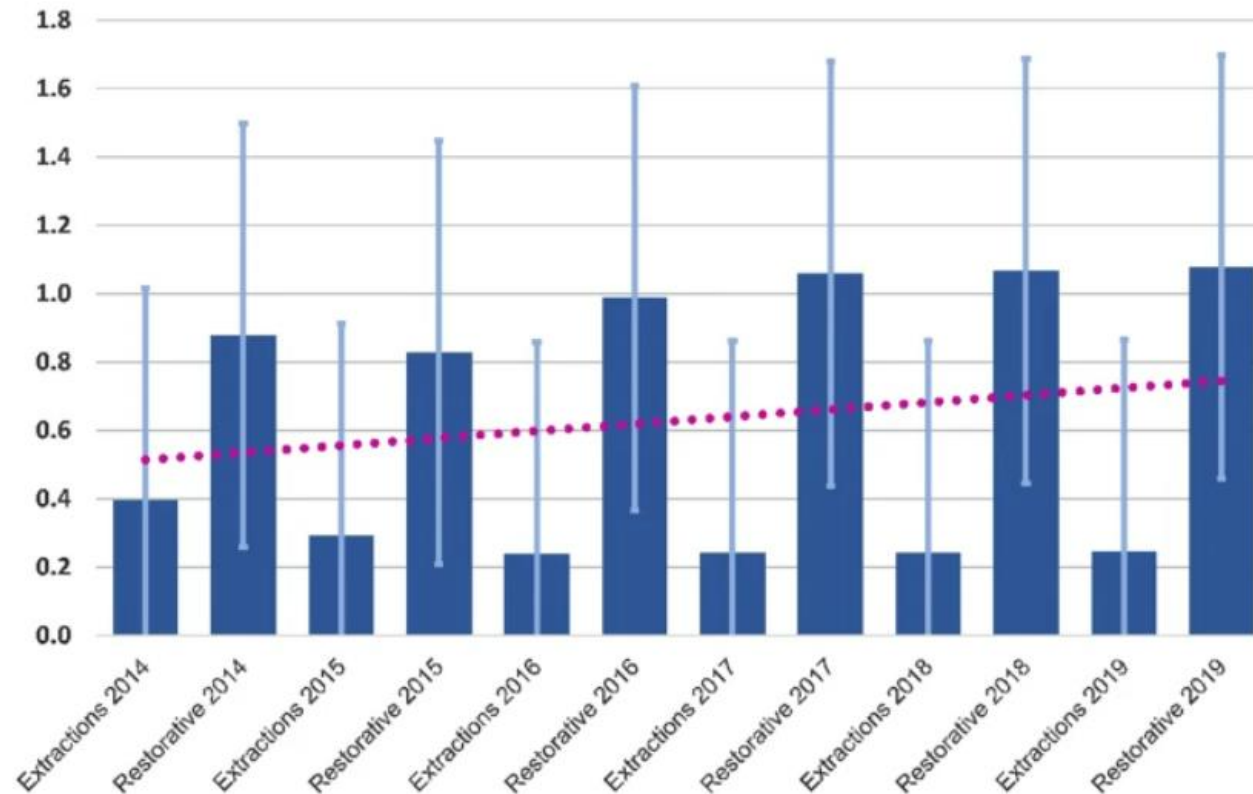
Meyer et al. *J Prevention* 2022;43:111–23. <https://link.springer.com/article/10.1007/s10935-021-00656-x>

Yazdanbakhsh et al. *Canadian J Public Health* 2024; 115(2):305-14

Stopping Community Water Fluoridation Increases Dental Treatment Costs

Consistent evidence from Anchorage, Calgary, and Israel

Fig. 1



Dental treatment rates by years. Figure shows the constant increase in dental treatments from 2014 until 2019 ($R^2 = 0.0402$)

Tobias et al. *Isr J Health Policy Res* 2022;11:4. <https://rdcu.be/dxTy9>

There Are No Good Substitutes for Community Water Fluoridation

- Prescription fluoride supplements for children increase costs and burden on families, and compliance is generally poor.
- Fluoride supplementation in children increases the risk for fluorosis.
- Fluoride supplementation is not recommended for adults.
- Weekly fluoride mouthrinses have almost 1,300 times greater fluoride concentration than water fluoridation (900 ppm vs. 0.7 ppm), so there are safety concerns in households with children.
- None are even close to the cost-effectiveness of water fluoridation.

Summary

- CWF still prevents caries even with widespread use of fluoride toothpaste.
- CWF saves money at current levels of prevention effectiveness.
- CWF reduces income disparities in dental caries.
- There is no association between CWF and changes in IQ.
- Cessation of CWF increases caries and treatment costs in children.



Thank You!

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OPEN Take 30: Water Fluoridation: Facts and Myths

Dr. Elizabeth Lense

April 17, 2025

American Dental Association



Utah Oral Health Coalition
analyzed the Fluoride Ban
proponents' arguments and
found 78% of arguments were
misleading or FALSE . . .



Myths About Fluoridation

1. MYTH – Every other country has banned fluoridation.

- **FACT** – Over 400 million people have fluoridated water: England, Ireland, Spain, Australia, NZ, Singapore, Brazil, Chile, etc. Other countries add F- to salt or milk.

2. MYTH – If you drink too much fluoridated water, you can get a toxic dose.

- **FACT** – EPA studies show most kids avg 2+ mg F- from all sources, adults <3 mg daily.
- Toxic dose is 5mg/kg; an avg adult would need to drink 120 gal in one sitting.

3. MYTH – Fluoride causes skeletal fluorosis and bone cancer.

- **FACT** – No credible evidence to support cancer claims, and skeletal fluorosis is unheard of in US.

4. MYTH – Fluoride is the most dangerous additive and harms water operators.

- **FACT** – Fluoride is comparable to other additives like Fe sulfate or quicklime, and less so than others like Cl- gas. Personnel should be using PPE according to SDS.

And More...

5. MYTH – Water fluoridation lowers a child's IQ, so pregnant women and nursing babies shouldn't drink fluoridated water.

- **FACT** – Most of the studies on pregnancy and child behavior/IQ are flawed.
- Only 0.1% F- passes to baby; there are negligible amounts in breastmilk.
- National Consensus Statement (ACOG, AAP, ADA) recommends for pregnant women to drink fluoridated water – morning sickness, reflux.

6. MYTH – Fluoridation is mass medication.

- **FACT** – High concentration varnish and gels are meds; F- in water is an additive; adding fluoride is more like fortification, like adding Vit D to milk; iodine to salt.

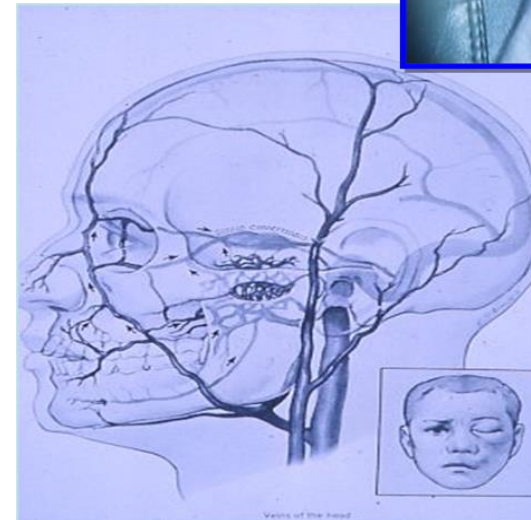
7. MYTH – Fluoridation takes away the right to choose.

- **FACT** – State bans take away a community's right to choose.
- Adults can filter or drink bottled water; children are most affected by loss of F-, but no right to vote or choose.

8. MYTH – Dental problems are cosmetic, not as important as other diseases.

FACTS:

- The mouth is connected to the rest of the body!
- Dental disease results in pain, infection, speech and nutrition issues, lost school and work.
- Oral disease linked to pregnancy outcomes, heart attacks, stroke, dementia... and even death.



American Dental Association on Community Water Fluoridation

The ADA endorses community water fluoridation as a safe, beneficial, cost-effective, and socially equitable public health measure for preventing dental caries in children and adults.

“We urge legislators and voters across the country not to make Utah’s significant mistake, and, instead, to trust credible data and science which shows that optimally fluoridating community water is safe, effective and helps prevent dental disease.” - Dr. Brett Kessler

American Academy of Pediatrics

Water fluoridation is an equitable and inexpensive way to ensure that prevention of dental disease reaches everyone in a community.

The American Academy of Pediatrics champions community water fluoridation (CWF) because it aligns with the AAP Equity Agenda.

"We remain committed to fluoride in water as a way to reach those most in need and we support continued research that can inform and update its optimal level over time . . . we have so much more work to do to ensure all people can get the dental care they need and achieve optimal oral health." (April 15, 2025)

Best Sources for Fluoridation Information

- Fluoridation Facts
- ADA Fluoridation Website
- Call ADA, state dental association, local public health departments
- NIH Fluoride Fact Sheet*
- CDC Water Fluoridation Website*
- American Fluoridation Society
- AAP Campaign for Dental Health – ilikemyteeth.org/blog

Water Fluoridation

There Is No Substitute



Question and Answer

Submit questions for the panelists in the **Q&A box**



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